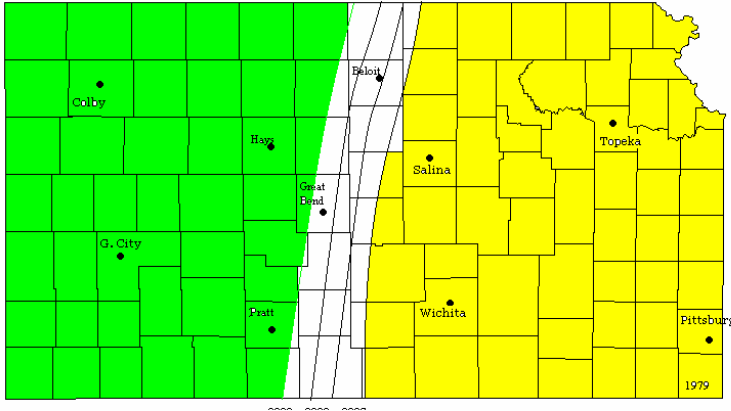


Preventing pine wilt, a threat to important Kansas trees

Pine trees are highly valued in urban and rural settings and are used in landscapes, windbreaks, and conservation plantings. Pine wilt has already killed many pines in eastern Kansas, and it poses an increasing threat to our pine plantings in western Kansas.

Distribution and spread: Pine wilt was first discovered in Kansas in 1979. Since then, it has moved westward at about 10 miles per year. The map shows the current distribution of pine wilt in Kansas. The white area displays locations where pine wilt is common. The grey and hashed areas are not infested with pine wilt, with the hashed area representing a 'transition zone'. In recent years there have been sporadic appearances of pine wilt in western Kansas, usually associated with contaminated firewood brought from the east. Those outbreaks were apparently controlled by timely eradication.



If left unchecked, pine wilt can destroy 5-25% of the pines in the first few years in the immediate vicinity. The closer the trees are to the initial infection, the greater the risk.

Causal agent:

Pine wilt is caused by the pinewood nematode, which is spread by the pine sawyer beetle (a long-horn beetle). Pine wilt primarily infects Scotch pines, and has destroyed many Scotch pines in eastern Kansas. Starting around 2005, pine wilt also began to infect more noticeable numbers of Austrian pines. Jack, mugo, red, and white pines can also be infected, but this is not common.

Symptoms:

In Kansas, new pine wilt infections are most visible from August to December. Trees wilt and die in a short period of time, from several weeks to a few months. In the first stages, the needles turn grey or green, then yellow and brown. The discoloration sometimes occurs branch by branch, sometimes all at once. The brown needles stay on the tree for up to a year after the tree has died. Another key symptom is reduced resin. During part of their life, the nematodes feed on plant cells in the tree's resin canals, thus stopping the flow of resin. On a healthy tree, sticky resin bleeds from the site of a wound. In contrast, if a tree has pine wilt the resin is often reduced or absent, and branches become dry or brittle.



Strategies to protect Kansas pines:

In 2007, the Kansas Department of Agriculture, Kansas Forest Service, and Kansas State University initiated a project to prevent or delay the spread of pine wilt to western Kansas. These groups will work closely with arborists, tree boards, master gardeners, county Extension personnel, and others. To be successful, the project will require careful monitoring, diagnosis, and sanitation.

What can we do to prevent pine wilt in western Kansas?

There are several critical steps to prevent the spread of pine wilt.

1) Proper diagnosis: If you see symptoms as described above, and suspect pine wilt, collect samples for accurate diagnosis. Other conditions (drought, bark beetles, root problems, other diseases) can also cause decline and death of pines. A branch (at least 2 inches in diameter, several inches long, from right against the trunk) or trunk (wedge from lower part) sample is adequate. Call the K-State Diagnostic Lab if you have questions about sampling. The best time to sample is late summer or early fall, when nematode populations are at their peak. Take the samples to your County Extension office, or send directly to:

Plant Disease Diagnostic Lab
4032 Throckmorton Hall
Kansas State University
Manhattan, KS 66506
785-532-1330

There is a small fee associated with the test

2) Sanitation: If pine wilt is confirmed, cut down the tree *to the ground*, leaving no stumps. Then *chip, bury, or burn the wood* before April 1. Around May 1 beetles emerge from wood to begin a new cycle, and it is important to prevent that spread. *Timely destruction is critical.* Standing dead pines and intact logs are breeding grounds for the nematode and beetle, and they pose a threat to other pines in the area when beetles emerge and carry the nematodes to new trees. Some landowners may be resistant to tree removal due to the cost. If this situation arises, contact your local forester, KDA inspector, K-State Diagnostic Lab, or County Extension office for assistance. However, with some education about pine wilt, most landowners will likely recognize their responsibility to act as stewards of the land and protect surrounding trees.

3) Surveillance: After the infected tree is removed, *continue to monitor the area* for more disease. Where there is one infected tree, there often are more. However, careful scouting and sanitation can eliminate sporadic outbreaks before they get out of control.

4) Prevention: Several actions can prevent the introduction of pine wilt.

- Don't import pine firewood from contaminated areas. Spread that message to your customers and colleagues as well as family and friends.
- Be wary of pine nursery stock from infested areas, and monitor nursery stock carefully.
- Promote tree health. The beetles are attracted to stressed trees. Provide water during drought.

For more information on pine wilt, including photos, see:

www.ksda.gov *updated pine wilt website coming soon in Plant Protection section*

<http://www.hfrr.ksu.edu/DesktopModules/ViewDocument.aspx?DocumentID=1353>

http://www.na.fs.fed.us/spfo/pubs/howtos/ht_pinewilt/pinewilt.htm

<http://www.extension.iastate.edu/Publications/SUL9.pdf>

January, 2007